

## **Bioterrorism Readiness Plan: A Template for Healthcare Facilities**

Document prepared by

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(The views expressed in this article by authors Judith F. English and John D. Malone, employed by the Department of the Navy, do not reflect the official policy or position of the Department of the Navy, or the Department of Defense, or the U.S. Government.)

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**Please note: This document will be updated to reflect public health guidelines and new information as they become available.**

## Introduction

The Association for Professionals in Infection Control and Epidemiology (APIC) recognizes the importance of awareness and preparation for bioterrorism on the part of healthcare facilities. In cooperation with the Centers for Disease Control and Prevention (CDC), APIC offers this Bioterrorism Readiness Plan to serve as a reference document and initial template to facilitate preparation of bioterrorism readiness plans for individual institutions.

This document is not intended to provide an exhaustive reference on the topic of bioterrorism. Rather it is intended to serve as a tool for infection control (IC) professionals and healthcare epidemiologists to guide the development of practical and realistic response plans for their institutions in preparation for a real or suspected bioterrorism attack. Institution-specific response-plans should be prepared in partnership with local and state health departments. Many of the facility bioterrorism planning components may be incorporated into existing disaster preparedness and other emergency management plans. These components may also be useful for identifying and responding to other infectious disease outbreaks in the community. Individual facilities should determine the extent of their bioterrorism readiness needs, which may range from notification of local emergency networks (i.e. calling 911) and transfer of affected patients to appropriate acute care facilities, to activation of large, comprehensive communication and management networks.

Hospitals and clinics may have the first opportunity to recognize and initiate a response to a bioterrorism-related outbreak. Healthcare facilities should have IC policies in place authorizing the healthcare epidemiologist, IC committee chairman, or designee to rapidly implement prevention and control measures in response to a suspected outbreak. Should a bioterrorism event be suspected, a network of communication must be activated to involve IC personnel, healthcare administration, local and state health departments, the Federal Bureau of Investigation (FBI) field office, and CDC (see Reporting Requirements and Contact Information below). Existing local emergency plans should be reviewed, and a multidisciplinary approach outlined that includes local emergency medical services (EMS), police and fire departments, and media relations in addition to healthcare providers and IC professionals. Annual disaster preparedness drills held at many facilities can improve response capacity by incorporating a bioterrorism scenario to test and refine Bioterrorism Readiness Plans at each individual facility.

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## Section I: General Categorical Recommendations for Any Suspected Bioterrorism Event

### A. Reporting Requirements and Contact Information

Healthcare facilities may be the initial site of recognition and response to bioterrorism events. If a bioterrorism event is suspected, local emergency response systems should be activated. Notification should immediately include local infection control personnel and the healthcare facility administration, and prompt communication with the local and state health departments, FBI field office, local police, CDC, and medical emergency services. **Each health care facility should include a list containing the following telephone notification numbers in its readiness plan:**

**INTERNAL CONTACTS:**

INFECTION CONTROL \_\_\_-\_\_\_\_  
 EPIDEMIOLOGIST \_\_\_-\_\_\_\_  
 ADMINISTRATION/PUBLIC AFFAIRS \_\_\_-\_\_\_\_

**EXTERNAL CONTACTS:**

LOCAL HEALTH DEPARTMENT \_\_\_-\_\_\_\_  
 STATE HEALTH DEPARTMENT 1-\_\_\_/\_\_\_-\_\_\_\_ \*  
 FBI FIELD OFFICE 1-\_\_\_/\_\_\_-\_\_\_\_ \*  
 BIOTERRORISM EMERGENCY NUMBER, CDC Emergency Response Office 770/488-7100  
 CDC HOSPITAL INFECTIONS PROGRAM 404/639-6413

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*\* Telephone numbers for FBI field offices and State health departments are listed in Appendix 1 and 2.*

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**B. Potential Agents**

Four diseases with recognized bioterrorism potential (anthrax, botulism, plague, and smallpox) and the agents responsible for them are described in Section II of this document. The CDC does not prioritize these agents in any order of importance or likelihood of use. Subsequent installments of this document will address additional agents with bioterrorism potential, including those that cause tularemia, brucellosis, Q fever, viral hemorrhagic fevers, and viral encephalitis, and disease associated with staphylococcal enterotoxin B.

**C. Detection of Outbreaks Caused by Agents of Bioterrorism**

Bioterrorism may occur as covert events, in which persons are unknowingly exposed and an outbreak is suspected only upon recognition of unusual disease clusters or symptoms. Bioterrorism may also occur as announced events, in which persons are warned that an exposure has occurred. A number of announced bioterrorism events have occurred in the United States during 1998-1999, but these were determined to have been “hoaxes;” that is, there were no true exposures to bioterrorism agents<sup>1</sup>. A healthcare facility’s Bioterrorism Readiness Plan should include details for management of both types of scenarios: suspicion of a bioterrorism outbreak potentially associated with a covert event and announced bioterrorism events or threats. The possibility of a bioterrorism event should be ruled out with the assistance of the FBI and state health officials.

**1. Syndrome-based criteria**

Rapid response to a bioterrorism-related outbreak requires prompt identification of its onset. Because of the rapid progression to illness and potential for dissemination of some of these agents, it may not be practical to await diagnostic laboratory confirmation. Instead, it will be necessary to initiate a response based on the recognition of high-risk syndromes. Each of the agent-specific plans in Section II includes a syndrome description (i.e., typical combination of clinical features of the illness at presentation), that should alert healthcare practitioners to the possibility of a bioterrorism-related outbreak.

## 2. Epidemiologic features

Epidemiologic principles must be used to assess whether a patient's presentation is typical of an endemic disease or is an unusual event that should raise concern. Features that should alert healthcare providers to the possibility of a bioterrorism-related outbreak include:

- A rapidly increasing disease incidence (e.g., within hours or days) in a normally healthy population.
- An epidemic curve that rises and falls during a short period of time.
- An unusual increase in the number of people seeking care, especially with fever, respiratory, or gastrointestinal complaints.
- An endemic disease rapidly emerging at an uncharacteristic time or in an unusual pattern.
- Lower attack rates among people who had been indoors, especially in areas with filtered air or closed ventilation systems, compared with people who had been outdoors.
- Clusters of patients arriving from a single locale.
- Large numbers of rapidly fatal cases.<sup>2</sup>
- Any patient presenting with a disease that is relatively uncommon and has bioterrorism potential (e.g., pulmonary anthrax, tularemia, or plague).<sup>3</sup>

## D. Infection Control Practices for Patient Management

The management of patients following suspected or confirmed bioterrorism events must be well organized and rehearsed. Strong leadership and effective communication are paramount.

### 1. Isolation precautions

Agents of bioterrorism are generally not transmitted from person to person; re-aerosolization of these agents is unlikely<sup>4</sup>. **All** patients in healthcare facilities, including symptomatic patients with suspected or confirmed bioterrorism-related illnesses, should be managed utilizing **Standard Precautions**. Standard Precautions are designed to reduce transmission from both recognized and unrecognized sources of infection in healthcare facilities, and are recommended for all patients receiving care, regardless of their diagnosis or presumed infection status<sup>5</sup>. **For certain diseases or syndromes (e.g., smallpox and pneumonic plague), additional precautions may be needed to reduce the likelihood for transmission.** See Section II for specific diseases and requirements for additional isolation precautions.

Standard Precautions prevent direct contact with all body fluids (including blood), secretions, excretions, nonintact skin (including rashes), and mucous membranes. Standard Precautions routinely practiced by healthcare providers include:

- **Handwashing**

Hands are washed after touching blood, body fluids, excretions, secretions, or items contaminated with such body fluids, whether or not gloves are worn. Hands are washed immediately after gloves are removed, between patient contacts, and as appropriate to avoid transfer of microorganisms to other patients and the environment. Either plain or antimicrobial-containing soaps may be used according to facility policy.

- **Gloves**

Clean, non-sterile gloves are worn when touching blood, body fluids, excretions, secretions, or items contaminated with such body fluids. Clean gloves are put on just before touching mucous membranes and nonintact skin. Gloves are changed between tasks and between procedures on the same patient if contact occurs with contaminated material. Hands are washed promptly after removing gloves and before leaving a patient care area.

- **Masks/Eye Protection or Face Shields**

A mask and eye protection (or face shield) are worn to protect mucous membranes of the eyes, nose, and mouth while performing procedures and patient care activities that may cause splashes of blood, body fluids, excretions, or secretions.

- **Gowns**

A gown is worn to protect skin and prevent soiling of clothing during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, excretions, or secretions. Selection of gowns and gown materials should be suitable for the activity and amount of body fluid likely to be encountered. Soiled gowns are removed promptly and hands are washed to avoid transfer of microorganisms to other patients and environments.

## **2. Patient placement**

In small-scale events, routine facility patient placement and infection control practices should be followed. However, when the number of patients presenting to a healthcare facility is too large to allow routine triage and isolation strategies (if required), it will be necessary to apply practical alternatives. These may include cohorting patients who present with similar syndromes, i.e., grouping affected patients into a designated section of a clinic or emergency department, or a designated ward or floor of a facility, or even setting up a response center at a separate building. Designated cohorting sites should be chosen in advance by the IC Committee (or other appropriate decision-making body), in consultation with facility engineering staff, based on patterns of airflow and ventilation, availability of adequate plumbing and waste disposal, and capacity to safely hold potentially large numbers of patients. The triage or cohort site should have controlled entry to minimize the possibility for transmission to other patients at the facility and to staff members not directly involved in managing the outbreak. At the same time, reasonable access to vital diagnostic services, e.g., radiography departments, should be maintained.

## **3. Patient transport**

Most infections associated with bioterrorism agents cannot be transmitted from patient-to-patient. Patient transport requirements for specific potential agents of bioterrorism are listed in Section II. In general, the transport and movement of patients with bioterrorism-related infections, as for patients with any epidemiologically important infections (e.g., pulmonary tuberculosis, chickenpox, measles), should be limited to movement that is essential to provide patient care, thus reducing the opportunities for transmission of microorganisms within healthcare facilities.

## **4. Cleaning, disinfection, and sterilization of equipment and environment**

Principles of Standard Precautions should be generally applied for the management of patient-care equipment and environmental control.

- Each facility should have in place adequate procedures for the routine care, cleaning, and disinfection of environmental surfaces, beds, bedrails, bedside equipment, and other frequently touched surfaces and equipment, and should ensure that these procedures are being followed.
- Facility-approved germicidal cleaning agents should be available in patient care areas to use for cleaning spills of contaminated material and disinfecting non-critical equipment.

- Used patient-care equipment soiled or potentially contaminated with blood, body fluids, secretions, or excretions should be handled in a manner that prevents exposures to skin and mucous membranes, avoids contamination of clothing, and minimizes the likelihood of transfer of microbes to other patients and environments.
- Policies should be in place to ensure that reusable equipment is not used for the care of another patient until it has been appropriately cleaned and reprocessed, and to ensure that single-use patient items are appropriately discarded.
- Sterilization is required for all instruments or equipment that enter normally sterile tissues or through which blood flows.
- Rooms and bedside equipment of patients with bioterrorism-related infections should be cleaned using the same procedures that are used for all patients as a component of Standard Precautions, unless the infecting microorganism and the amount of environmental contamination indicates special cleaning. In addition to adequate cleaning, thorough disinfection of bedside equipment and environmental surfaces may be indicated for certain organisms that can survive in the inanimate environment for extended periods of time. The methods and frequency of cleaning and the products used are determined by facility policy.
- Patient linen should be handled in accordance with Standard Precautions. Although linen may be contaminated, the risk of disease transmission is negligible if it is handled, transported, and laundered in a manner that avoids transfer of microorganisms to other patients, personnel and environments. Facility policy and local/state regulations should determine the methods for handling, transporting, and laundering soiled linen.
- Contaminated waste should be sorted and discarded in accordance with federal, state and local regulations.
- Policies for the prevention of occupational injury and exposure to bloodborne pathogens in accordance with Standard Precautions and Universal Precautions should be in place within each healthcare facility.<sup>5</sup>

## **5. Discharge management**

Ideally, patients with bioterrorism-related infections will not be discharged from the facility until they are deemed noninfectious. However, consideration should be given to developing home-care instructions in the event that large numbers of persons exposed may preclude admission of all infected patients. Depending on the exposure and illness, home care instructions may include recommendations for the use of appropriate barrier precautions, handwashing, waste management, and cleaning and disinfection of the environment and patient-care items.

## **6. Post-mortem care**

Pathology departments and clinical laboratories should be informed of a potentially infectious outbreak prior to submitting any specimens for examination or disposal. All autopsies should be performed carefully using all personal protective equipment and standards of practice in accordance with Standard Precautions, including the use of masks and eye protection whenever the generation of aerosols or splatter of body fluids is anticipated. Instructions for funeral directors should be developed and incorporated into the Bioterrorism Readiness Plan for communication.<sup>5</sup>

## E. Post Exposure Management

### **1. Decontamination of Patients and Environment**

The need for decontamination depends on the suspected exposure and in most cases will not be necessary. The goal of decontamination after a potential exposure to a bioterrorism agent is to reduce the extent of external contamination of the patient and contain the contamination to prevent further spread. Decontamination should only be considered in instances of gross contamination. Decisions regarding the need for decontamination should be made in consultation with state and local health departments. Decontamination of exposed individuals prior to receiving them in the healthcare facility may be necessary to ensure the safety of patients and staff while providing care. When developing Bioterrorism Readiness Plans, facilities should consider available locations and procedures for patient decontamination prior to facility entry.

Depending on the agent, the likelihood for re-aerosolization, or a risk associated with cutaneous exposure, clothing of exposed persons may need to be removed. After removal of contaminated clothing, patients should be instructed (or assisted if necessary) to immediately shower with soap and water. **Potentially harmful practices, such as bathing patients with bleach solutions, are unnecessary and should be avoided.** Clean water, saline solution, or commercial ophthalmic solutions are recommended for rinsing eyes. If indicated, after removal at the decontamination site, patient clothing should be handled only by personnel wearing appropriate personal protective equipment, and placed in an impervious bag to prevent further environmental contamination. Decontamination requirements for specific potential agents of bioterrorism are listed in Section II.<sup>6</sup>

Development of Bioterrorism Readiness Plans should include coordination with the FBI field office. The FBI may require collection of exposed clothing and other potential evidence for submission to FBI or Department of Defense laboratories to assist in exposure investigations.

### **2. Prophylaxis and post-exposure immunization**

Recommendations for prophylaxis are subject to change. Current recommendations for post-exposure prophylaxis and immunization are provided in Section II for relevant potential bioterrorism agents. However, up-to-date recommendations should be obtained in consultation with local and state health departments and CDC. Facilities should ensure that policies are in place to identify and manage health care workers exposed to infectious patients. In general, maintenance of accurate occupational health records will facilitate identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers.

### **3. Triage and management of large scale exposures and suspected exposures**

Each healthcare facility, with the involvement of the IC committee, administration, building engineering staff, emergency department, laboratory directors and nursing directors, should clarify in advance how they will best be able to deliver care in the event of a large scale exposure. Facilities should incorporate into their Bioterrorism Readiness Plan processes for triage and safe housing and care for potentially large numbers of affected individuals. Facility needs will vary with the size of the regional population served and the proximity to other healthcare facilities and external assistance. Triage and management planning for large-scale events may include:

- Establishing networks of communication and lines of authority required to coordinate on-site care.



- Planning for cancellation of non-emergency services and procedures.
- Identifying sources able to supply available vaccines, immune globulin, antibiotics, and botulinum anti-toxin (with assistance from local and state health departments).
- Planning for the efficient evaluation and discharge of patients.
- Developing discharge instructions for patients determined to be non-contagious or in need of additional on-site care, including details regarding if and when they should return for care or if they should seek medical follow-up.
- Determining availability and sources for additional medical equipment and supplies (e.g., ventilators) that may be needed for urgent large-scale care.
- Planning for the allocation or re-allocation of scarce equipment in the event of a large-scale event (e.g., duration of ventilator support of terminally afflicted individuals).
- With assistance from the Pathology service, identifying the institution's ability to manage a sudden increase in the number of cadavers on site.<sup>3,7</sup>

#### 4. Psychological aspects of bioterrorism

Following a bioterrorism-related event, fear and panic can be expected from both patients and healthcare providers. Psychological responses following a bioterrorism event may include horror, anger, panic, unrealistic concerns about infection, fear of contagion, paranoia, social isolation, or demoralization. IC professionals should develop prior working relationships with mental health support personnel (e.g., psychiatrists, psychologists, social workers, clergy, and volunteer groups) and assist in their collaboration with emergency response agencies and the media. Local, state, and federal media experts can provide assistance with communications needs.

When developing the facility Bioterrorism Readiness Plan, consider the following to address patient and general public fears:

- Minimize panic by clearly explaining risks, offering careful but rapid medical evaluation/treatment, and avoiding unnecessary isolation or quarantine.
- Treat anxiety in unexposed persons who are experiencing somatic symptoms (e.g., with reassurance, or diazepam-like anxiolytics as indicated for acute relief of those who do not respond to reassurance).

Consider the following to address healthcare worker fears:

- Provide bioterrorism readiness education, including frank discussions of potential risks and plans for protecting healthcare providers.
- Invite active, voluntary involvement in the bioterrorism readiness planning process.
- Encourage participation in disaster drills.

Fearful or anxious healthcare workers may benefit from their usual sources of social support, or by being asked to fulfill a useful role (e.g., as a volunteer at the triage site).<sup>8</sup>

#### F. Laboratory Support and Confirmation

This part of the document is subject to updates due to current work underway to improve the diagnostic capacity of laboratories to isolate and identify these agents. Facilities should work with local, state and federal public health services to tailor diagnostic strategies to specific events. Currently the **Bioterrorism Emergency Number at CDC is at the Emergency Response Office, NCEH, 770/488-7100.**

#### 1. Obtaining diagnostic samples

See specific recommendations for diagnostic sampling for each agent. Sampling should be performed in accordance with Standard Precautions. In all cases of suspected bioterrorism, collect an acute phase serum sample to be analyzed, aliquotted, and saved for comparison to a later convalescent serum sample.

## 2. Laboratory criteria for processing potential bioterrorism agents

To evaluate laboratory capacity in the United States, a proposal is being made to group laboratories into one of four levels, according to their ability to support the diagnostic needs presented by an event. The proposed laboratory levels in the planning stages are:

- Level A: Clinical laboratories – minimal identification of agents
- Level B: County/ State/ other laboratories – identification, confirmation, susceptibility testing
- Level C: State and other large facility laboratories with advanced capacity for testing – some molecular technologies
- Level D: CDC or select Department of Defense laboratories, such as U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) – Bio Safety Level (BSL) 3 and 4 labs with special surge capacity and advanced molecular typing techniques.

## 3. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. For specific instructions, contact the **Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100**. Advance planning may include identification of appropriate packaging materials and transport media in collaboration with the clinical laboratory at individual facilities.

## G. Patient, Visitor, and Public Information

Clear, consistent, understandable information should be provided (e.g., via fact sheets) to patients, visitors, and the general public. During bioterrorism-related outbreaks, visitors may be strictly limited.

A well-designed healthcare facility Bioterrorism Readiness Plan should clarify the lines of authority and flow of communication. To minimize the anticipated responses of fear, confusion and anger, healthcare facilities should plan in advance the methods and channels of communications to be used to inform the public. IC professionals working with the IC committee and administration should coordinate in advance with state and local health agencies, local emergency services, and local broadcast media systems to decide how communication and action across agencies will be accomplished. Failure to provide a public forum for information exchange may increase anxiety and misunderstanding, increasing fear among individuals who attribute non-specific symptoms to exposure to the bioterrorism agent.

## Section II: Agent-Specific Recommendations

### A. Anthrax

#### 1. Description of Agent / Syndrome

##### a. Etiology

Anthrax is an acute infectious disease caused by *Bacillus anthracis*, a spore forming, gram-positive bacillus. Associated disease occurs most frequently in sheep, goats, and cattle, which acquire spores through ingestion of contaminated soil. Humans can become infected through skin contact, ingestion, or inhalation of *B. anthracis* spores from infected animals or animal products (as in “woolsorter’s disease” from exposure to goat hair). Person-to-person transmission of inhalational disease does not occur. Direct exposure to vesicle secretions of cutaneous anthrax lesions may result in secondary cutaneous infection.<sup>1</sup>

##### b. Clinical features

Human anthrax infection can occur in three forms: pulmonary, cutaneous, or gastrointestinal, depending on the route of exposure. Of these forms, pulmonary anthrax is associated with bioterrorism exposure to aerosolized spores.<sup>9</sup> Clinical features for each form of anthrax include:

##### Pulmonary

- Non-specific prodrome of **flu-like symptoms** follows inhalation of infectious spores.
- Possible brief interim improvement.
- Two to four days after initial symptoms, **abrupt onset of respiratory failure** and hemodynamic collapse, possibly accompanied by thoracic edema and a **widened mediastinum on chest radiograph** suggestive of mediastinal lymphadenopathy and hemorrhagic mediastinitis.
- Gram-positive bacilli on blood culture, usually after the first two or three days of illness.
- Treatable in early prodromal stage. Mortality remains extremely high despite antibiotic treatment if it is initiated after onset of respiratory symptoms.

##### Cutaneous

- Local skin involvement after direct contact with spores or bacilli.
- Commonly seen on the head, forearms or hands.
- Localized itching, followed by a papular lesion that turns vesicular, and within 2-6 days develops into a depressed black eschar.
- Usually non-fatal if treated with antibiotics.

##### Gastro-intestinal

- Abdominal pain, nausea, vomiting, and fever following ingestion of contaminated food, usually meat.
- Bloody diarrhea, hematemesis.
- Gram-positive bacilli on blood culture, usually after the first two or three days of illness.
- Usually fatal after progression to toxemia and sepsis.<sup>10</sup>

##### c. Modes of transmission

The spore form of *B. anthracis* is durable. As a bioterrorism agent, it could be delivered as an aerosol. The modes of transmission for anthrax include:

- Inhalation of spores.

- Cutaneous contact with spores or spore-contaminated materials.
- Ingestion of contaminated food.<sup>1</sup>

d. Incubation period

The incubation period following exposure to *B. anthracis* ranges from 1day to 8 weeks (average 5days), depending on the exposure route and dose:

- 2-60 days following pulmonary exposure.
- 1-7 days following cutaneous exposure.
- 1-7 days following ingestion.

e. Period of communicability

Transmission of anthrax infections from person to person is unlikely. Airborne transmission does not occur, but direct contact with skin lesions may result in cutaneous infection.<sup>6</sup>

## 2. Preventive Measures

a. Vaccine availability

- Inactivated, cell-free anthrax vaccine (Bioport Corporation 517/327-1500, formerly Michigan Biologic Products Institute\*) – limited availability.

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\*Use of trade names and commercial sources is for identification only and does not constitute endorsement by CDC or the U.S. Department of Health and Human Services

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b. Immunization recommendations

- Routinely administered to military personnel. Routine vaccination of civilian populations not recommended.<sup>1,10-12</sup>

## 3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed infections with *B. anthracis* should be managed according to current guidelines specific to their disease state. Recommendations for chemotherapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact the local and state health department and the Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100.

a. Isolation precautions

Standard Precautions are used for the care of patients with infections associated with *B. anthracis*. Standard Precautions include the routine use of gloves for contact with nonintact skin, including rashes and skin lesions.

b. Patient placement

Private room placement for patients with anthrax is not necessary. Airborne transmission of anthrax does not occur. Skin lesions may be infectious, but requires direct skin contact only.

c. Patient transport

Standard Precautions should be used for transport and movement of patients with *B. anthracis* infections.

d. Cleaning, disinfection, and sterilization of equipment and environment

Principles of Standard Precautions should be generally applied for the management of patient-care equipment and for environmental control (see Section I for more detail).

e. Discharge management

No special discharge instructions are indicated. Home care providers should be taught to use Standard Precautions for all patient care (e.g., dressing changes).

f. Post-mortem care

Standard Precautions should be used for post-mortem care. Standard Precautions include wearing appropriate personal protective equipment, including masks and eye protection, when generation of aerosols or splatter of body fluids is anticipated.<sup>5</sup>

#### 4. Post Exposure Management

a. Decontamination of patients / environment

The risk for re-aerosolization of *B. anthracis* spores appears to be extremely low in settings where spores were released intentionally or were present at low or high levels. In situations where the threat of gross exposure to *B. anthracis* spores exists, cleansing of skin and potentially contaminated fomites (e.g. clothing or environmental surfaces) may be considered to reduce the risk for cutaneous and gastrointestinal forms of disease. The plan for decontaminating patients exposed to anthrax may include the following:

- Instructing patients to remove contaminated clothing and store in labeled, plastic bags.
- Handling clothing minimally to avoid agitation.
- Instructing patients to shower thoroughly with soap and water (and providing assistance if necessary).
- Instructing personnel regarding Standard Precautions and wearing appropriate barriers (e.g. gloves, gown, and respiratory protection) when handling contaminated clothing or other contaminated fomites.
- Decontaminating environmental surfaces using an EPA-registered, facility-approved sporicidal/germicidal agent or 0.5% hypochlorite solution (one part household bleach added to nine parts water).<sup>5,6</sup>

b. Prophylaxis and post-exposure immunization

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC.

Prophylaxis should be initiated upon confirmation of an anthrax exposure (Table 1).

Table 1. Recommended post-exposure prophylaxis for exposure to *Bacillus anthracis*

Antimicrobial agent	Adults	Children §
<b>Oral Fluoroquinolones</b>		
One of the following:		
Ciprofloxacin	500 mg twice daily	20-30 mg per kg of body mass daily, divided into two doses
Levofloxacin	500 mg once daily	Not recommended
Ofloxacin	400 mg twice daily	Not recommended
<b>If fluoroquinolones are not available or are contraindicated</b>		
Doxycycline	100 mg twice daily	5 mg per kg of body mass per day divided into two doses

§ Pediatric use of fluoroquinolones and tetracyclines is associated with adverse effects that must be weighed against the risk of developing a lethal disease. If *B. anthracis* exposure is confirmed, the organism must be tested for penicillin susceptibility. If susceptible, exposed children may be treated with oral amoxicillin 40mg per kg of body mass per day divided every 8 hours (not to exceed 500mg, three times daily).

Prophylaxis should continue until *B. anthracis* exposure has been excluded. If exposure is confirmed, prophylaxis should continue for 8 weeks. In addition to prophylaxis, post-exposure immunization with an inactivated, cell-free anthrax vaccine is also indicated following anthrax exposure. If available, post-exposure vaccination consists of three doses of vaccine at 0, 2 and 4 weeks after exposure. With vaccination, post-exposure antimicrobial prophylaxis can be reduced to 4 weeks.<sup>1</sup>

c. Triage and management of large scale exposures / potential exposures

Advance planning should include identification of:

- Sources of prophylactic antibiotics and planning for acquisition on short notice.
- Locations, personnel needs and protocols for administering prophylactic post-exposure care to large numbers of potentially exposed individuals.
- Means for providing telephone follow-up information and other public communications services.

Intensive care unit managers will need to consider in advance:

- How limited numbers of ventilators will be distributed in the event of a large number of patients arriving with abrupt pulmonary decompensation.
- How additional ventilators can be obtained.

- In the event of severely limited ventilator availability, whether and when ventilator support will be discontinued for a terminally ill individual.<sup>3,10,11</sup>

See Section I for additional general details regarding planning for large-scale patient management.

## 5. Laboratory Support and Confirmation

Diagnosis of anthrax is confirmed by aerobic culture performed in a BSL -2 laboratory.<sup>1</sup>

### a. Diagnostic samples

Diagnostic samples to obtain include:

- Blood cultures.
- Acute serum for frozen storage.
- Stool culture if gastrointestinal disease is suspected.

### b. Laboratory selection

Handling of clinical specimens should be coordinated with local and state health departments, and undertaken in BSL -2 or -3 laboratories. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

### c. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. For specific instructions, contact the **Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100**. Advance planning may include identification of appropriate packaging materials and transport media in collaboration with the clinical laboratory at individual facilities.

## 6. Patient, Visitor, and Public Information

Fact sheets for distribution should be prepared, including explanation that people recently exposed to *B. anthracis* are not contagious, and antibiotics are available for prophylactic therapy along with the anthrax vaccine. Dosing information and potential side effects should be explained clearly. Decontamination procedures, i.e., showering thoroughly with soap and water; and environmental cleaning, i.e., with 0.5% hypochlorite solution (one part household bleach added to nine parts water), can be described.

## B. Botulism

### 1. Description of Agent / Syndrome

#### a. Etiology

*Clostridium botulinum* is an anaerobic gram-positive bacillus that produces a potent neurotoxin, botulinum toxin. In humans, botulinum toxin inhibits the release of acetylcholine, resulting in characteristic flaccid paralysis. *C. botulinum* produces spores that are present in soil and marine sediment throughout the world. Foodborne botulism is the most common form of disease in adults. An inhalational form of botulism is also possible<sup>13</sup>. Botulinum toxin exposure may occur in both forms as agents of bioterrorism.

#### b. Clinical features

Foodborne botulism is accompanied by gastrointestinal symptoms. Inhalational botulism and foodborne botulism are likely to share other symptoms including:

- Responsive patient with absence of fever.
- **Symmetric cranial neuropathies (drooping eyelids, weakened jaw clench, difficulty swallowing or speaking).**
- **Blurred vision** and diplopia due to extra-ocular muscle palsies.
- **Symmetric descending weakness in a proximal to distal pattern** (paralysis of arms first, followed by respiratory muscles, then legs).
- **Respiratory dysfunction** from respiratory muscle paralysis or upper airway obstruction due to weakened glottis.
- No sensory deficits.

#### c. Mode of transmission

Botulinum toxin is generally transmitted by ingestion of toxin-contaminated food<sup>6</sup>. Aerosolization of botulinum toxin has been described and may be a mechanism for bioterrorism exposure<sup>11</sup>.

#### d. Incubation period

- Neurologic symptoms of foodborne botulism begin 12 – 36 hours after ingestion.
- Neurologic symptoms of inhalational botulism begin 24- 72 hours after aerosol exposure.

#### e. Period of communicability

Botulism is not transmitted from person to person.<sup>10</sup>

### 2. Preventive Measures

#### a. Vaccine availability

A pentavalent toxoid vaccine has been developed by the Department of Defense. This vaccine is available as an investigational new drug (contact USAMRIID, 301/619-2833). Completion of a recommended schedule (0, 2, 12 weeks) has been shown to induce protective antitoxin levels detectable at 1-year post vaccination.

#### b. Immunization recommendations

Routine immunization of the public, including healthcare workers, is not recommended.<sup>11</sup>

### 3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed botulism should be managed according to current guidelines.<sup>14</sup> Recommendations for therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact CDC or state health department.



- a. Isolation precautions  
Standard Precautions are used for the care of patients with botulism.
- b. Patient placement  
Patient-to-patient transmission of botulism does not occur. Patient room selection and care should be consistent with facility policy.
- c. Patient transport  
Standard Precautions should be used for transport and movement of patients with botulism.
- d. Cleaning, disinfection, and sterilization of equipment and environment  
Principles of Standard Precautions should be generally applied to the management of patient-care equipment and environmental control (see Section I for more detail).
- e. Discharge management  
No special discharge instructions are indicated.
- f. Post-mortem care  
Standard Precautions should be used for post-mortem care.<sup>5</sup>

#### **4. Post Exposure Management**

Suspicion of even single cases of botulism should immediately raise concerns of an outbreak potentially associated with shared contaminated food. In collaboration with CDC and local /state health departments, attempts should be made to locate the contaminated food source and identify other persons who may have been exposed.<sup>13</sup> Any individuals suspected to have been exposed to botulinum toxin should be carefully monitored for evidence of respiratory compromise.<sup>14</sup>

- a. Decontamination of patients / environment  
Contamination with botulinum toxin does not place persons at risk for dermal exposure or risk associated with re-aerosolization. Therefore, decontamination of patients is not required.
- b. Prophylaxis and post-exposure immunization  
Trivalent botulinum antitoxin is available by contacting state health departments or by contacting CDC (404/639-2206 during office hours, 404/639-2888 after hours). This horse serum product has a <9% percent rate of hypersensitivity reactions. Skin testing should be performed according to the package insert prior to administration.<sup>14</sup>
- c. Triage and management of large scale exposures / potential exposures  
Patients affected by botulinum toxin are at risk for respiratory dysfunction that may necessitate mechanical ventilation. Ventilatory support is required, on average, for 2 to 3 months before neuromuscular recovery allows unassisted breathing. Large-scale exposures to botulinum toxin may overwhelm an institution's available resources for mechanical ventilation. Sources of auxiliary support and means to transport patients to auxiliary sites, if necessary should be planned in advance with coordination among neighboring facilities.<sup>6,10</sup>

See Section I for additional general details regarding planning for large-scale patient management.

#### **5. Laboratory Support and Confirmation**

- a. Obtaining diagnostic samples  
Routine laboratory tests are of limited value in the diagnosis of botulism. Detection of toxin is possible from serum, stool samples, or gastric secretions. For advice regarding the

appropriate diagnostic specimens to obtain, contact state health authorities or CDC (Foodborne and Diarrheal Diseases Branch, 404/639-2888).

b. Laboratory selection

Handling of clinical specimens should be coordinated with local and state health departments. The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

c. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. For specific instructions, contact the **Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100**. Advance planning may include identification of appropriate packaging materials and transport media in collaboration with the clinical laboratory at individual facilities.

## 6. Patient, Visitor, and Public Information

Fact sheets for distribution should be prepared, including explanation that people exposed to botulinum toxin are not contagious. A clear description of symptoms including blurred vision, drooping eyelids, and shortness of breath should be provided with instructions to report for evaluation and care if such symptoms develop.

## C. Plague

### 1. **Description of Agent / Syndrome**

#### a. Etiology

Plague is an acute bacterial disease caused by the gram-negative bacillus *Yersinia pestis*, which is usually transmitted by infected fleas, resulting in lymphatic and blood infections (bubonic and septicemia plague). A bioterrorism-related outbreak may be expected to be airborne, causing a pulmonary variant, pneumonic plague.<sup>3,10</sup>

#### b. Clinical features

Clinical features of pneumonic plague include:

- Fever, cough, chest pain.
- Hemoptysis.
- Muco-purulent or watery sputum with gram-negative rods on gram stain.
- Radiographic evidence of bronchopneumonia.<sup>10</sup>

#### c. Modes of transmission

- Plague is normally transmitted from an infected rodent to man by infected fleas.
- Bioterrorism-related outbreaks are likely to be transmitted through dispersion of an aerosol.
- Person-to-person transmission of pneumonic plague is possible via large aerosol droplets.<sup>6</sup>

#### d. Incubation period

The incubation period for plague is normally 2 – 8 days if due to fleaborne transmission. The incubation period may be shorter for pulmonary exposure (1-3 days).<sup>10</sup>

#### e. Period of communicability

Patients with pneumonic plague may have coughs productive of infectious particle droplets. Droplet precautions, including the use of a mask for patient care, should be implemented until the patient has completed 72 hours of antimicrobial therapy.<sup>3,6</sup>

### 2. **Preventive Measures**

#### a. Vaccine availability

Formalin-killed vaccine exists for bubonic plague, but has not been proven to be effective for pneumonic plague. It is not currently available in the United States.

#### b. Immunization recommendations

Routine vaccination requires multiple doses given over several weeks and is not recommended for the general population.<sup>3</sup> Post-exposure immunization has no utility.

### 3. **Infection Control Practices for Patient Management**

Symptomatic patients with suspected or confirmed plague should be managed according to current guidelines. Recommendations for specific therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact CDC or state health department.

#### a. Isolation precautions

For pneumonic plague, Droplet Precautions should be used in addition to Standard Precautions.

- Droplet Precautions are used for patients known or suspected to be infected with microorganisms transmitted by large particle droplets, generally larger than 5 $\mu$  in size,

that can be generated by the infected patient during coughing, sneezing, talking, or during respiratory-care procedures.

- Droplet Precautions require healthcare providers and others to wear a surgical-type mask when within 3 feet of the infected patient. Based on local policy, some healthcare facilities require a mask be worn to enter the room of a patient on Droplet Precautions.
- Droplet Precautions should be maintained until patient has completed 72 hours of antimicrobial therapy.

b. Patient placement

Patients suspected or confirmed to have pneumonic plague require Droplet Precautions.

Patient placement recommendations for Droplet Precautions include:

- Placing infected patient in a private room.
- Cohort in symptomatic patients with similar symptoms and the same presumptive diagnosis (i.e. pneumonic plague) when private rooms are not available.
- Maintaining spatial separation of at least 3 feet between infected patients and others when cohorting is not achievable.
- Avoiding placement of patient requiring Droplet Precautions in the same room with an immunocompromised patient.

Special air handling is not necessary and doors may remain open.

c. Patient transport

- Limit the movement and transport of patients on Droplet Precautions to essential medical purposes only.
- Minimize dispersal of droplets by placing a surgical-type mask on the patient when transport is necessary.<sup>5,6</sup>

d. Cleaning, disinfection, and sterilization of equipment and environment

Principles of Standard Precautions should be generally applied to the management of patient-care equipment and for environmental control (see Section I for more detail).<sup>5</sup>

e. Discharge management

Generally, patients with pneumonic plague would not be discharged from a healthcare facility until no longer infectious (completion of 72 hours of antimicrobial therapy) and would require no special discharge instructions. In the event of a large bioterrorism exposure with patients receiving care in their homes, home care providers should be taught to use Standard and Droplet Precautions for all patient care.

f. Post-mortem care

Standard Precautions and Droplet Precautions should be used for post-mortem care.<sup>5</sup>

#### 4. Post Exposure Management

a. Decontamination of patients / environment

The risk for re-aerosolization of *Y. pestis* from the contaminated clothing of exposed persons is low. In situations where there may have been gross exposure to *Y. pestis*, decontamination of skin and potentially contaminated fomites (e.g. clothing or environmental surfaces) may be considered to reduce the risk for cutaneous or bubonic forms of the disease.<sup>3</sup>

The plan for decontaminating patients may include:

- Instructing patients to remove contaminated clothing and storing in labeled, plastic bags.
- Handling clothing minimally to avoid agitation.
- Instructing to patients to shower thoroughly with soap and water (and providing assistance if necessary).

- Instructing personnel regarding Standard Precautions and wearing appropriate barriers (e.g. gloves, gown, face shield) when handling contaminated clothing or other contaminated fomites.
- Performing environmental surface decontamination using an EPA-registered, facility-approved sporicidal/germicidal agent or 0.5% hypochlorite solution (one part household bleach added to nine parts water).<sup>5,6</sup>

b. Prophylaxis

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC.

Post-exposure prophylaxis should be initiated following confirmed or suspected bioterrorism *Y. pestis* exposure, and for post-exposure management of healthcare workers and others who had unprotected face-to-face contact with symptomatic patients (Table 2).

Table 2. Recommended post-exposure prophylaxis for exposure to *Yersinia pestis*.

Antimicrobial agent	Adults	Children §
<b>First choice</b>		
Doxycycline	100 mg twice daily	5 mg per kg of body mass per day divided into two doses
<b>2<sup>nd</sup> choice</b>		
Ciprofloxacin	500 mg twice daily	20-30 mg per kg of body mass daily, divided into two doses

§ Pediatric use of tetracyclines and fluoroquinolones is associated with adverse effects that must be weighed against the risk of developing a lethal disease.

Prophylaxis should continue for 7 days after last known or suspected *Y. pestis* exposure, or until exposure has been excluded.<sup>10</sup>

Facilities should ensure that policies are in place to identify and manage health care workers exposed to infectious patients. In general, maintenance of accurate occupational health records will facilitate identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers<sup>3,11,12</sup>

c. Triage and management of large scale exposures / potential exposures

Advance planning should include identification of sources for appropriate masks to facilitate adherence to Droplet Precautions for potentially large numbers of patients and staff. Instruction and reiteration of requirements for Droplet Precautions (as opposed to Airborne Precautions) will be necessary to promote compliance and minimize fear and panic related to an aerosol exposure.

Advance planning should also include identification of:

- Sources of bulk prophylactic antibiotics and planning for acquisition on short notice.
- Locations, personnel needs and protocols for administering prophylactic post-exposure care to large numbers of potentially exposed individuals.
- Means for providing telephone follow-up information and other public communications services.

See Section I for additional general details regarding planning for large-scale patient management.

## 5. Laboratory Support and Confirmation

Laboratory confirmation of plague is by standard microbiologic culture, but slow growth and misidentification in automated systems are likely to delay diagnosis. For decisions regarding obtaining and processing diagnostic specimens, contact state laboratory authorities or CDC.

### a. Diagnostic samples

Diagnostic samples to obtain include:

- Serum for capsular antigen testing.
- Blood cultures.
- Sputum or tracheal aspirates for Gram's, Wayson's, and fluorescent antibody staining.
- Sputum or tracheal aspirates for culture.

### b. Laboratory selection

Handling of clinical specimens should be coordinated with local and state health departments, and undertaken in Bio-Safety Level (BSL) -2 or -3 laboratories.<sup>3</sup> The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

### c. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. For specific instructions, contact the **Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100**. Advance planning may include identification of appropriate packaging materials and transport media in collaboration with the clinical laboratory at individual facilities.

## 6. Patient, Visitor, and Public Information

Fact sheets for distribution should be prepared, including a clear description of Droplet Precautions, symptoms of plague, and instructions to report for evaluation and care if such symptoms are recognized. The difference between prophylactic antimicrobial therapy and treatment of an actual infection should be clarified. Decontamination by showering thoroughly with soap and water can be recommended.

## D. Smallpox

### 1. Description of Agent / Syndrome

#### a. Etiology

Smallpox is an acute viral illness caused by the variola virus.<sup>11</sup> Smallpox is a bioterrorism threat due to its potential to cause severe morbidity in a nonimmune population and because it can be transmitted via the airborne route.<sup>10</sup> A single case is considered a public health emergency.

#### b. Clinical features

Acute clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza. Skin lesions appear, quickly progressing from macules to papules to vesicles. Other clinical symptoms to aid in identification of smallpox include:

- 2-4 day, non-specific prodrome of **fever, myalgias**.
- **rash most prominent on face and extremities** (including palms and soles) in contrast to the truncal distribution of varicella.
- **rash scabs over in 1-2 weeks**.
- In contrast to the rash of varicella, which arises in “crops,” **variola rash has a synchronous onset**.<sup>10</sup>

#### c. Mode of transmission

Smallpox is transmitted via both large and small respiratory droplets. Patient-to-patient transmission is likely from airborne and droplet exposure, and by contact with skin lesions or secretions. Patients are considered more infectious if coughing or if they have a hemorrhagic form of smallpox.

#### d. Incubation period

The incubation period for smallpox is 7-17 days; the average is 12 days.

#### e. Period of communicability

Unlike varicella, which is contagious before the rash is apparent, patients with smallpox become infectious at the onset of the rash and remain infectious until their scabs separate (approximately 3 weeks).<sup>6,10</sup>

### 2. Preventive Measures

#### a. Vaccine availability

A live-virus intradermal vaccination is available for the prevention of smallpox.<sup>12</sup>

#### b. Immunization recommendations

Since the last naturally acquired case of smallpox in the world occurred more than 20 years ago, routine public vaccination has not been recommended.<sup>3</sup> **Vaccination against smallpox does not reliably confer lifelong immunity. Even previously vaccinated persons should be considered susceptible to smallpox.**

### 3. Infection Control Practices for Patient Management

Symptomatic patients with suspected or confirmed smallpox should be managed according to current guidelines. Recommendations for specific therapy are beyond the scope of this document. For up-to-date information and recommendations for therapy, contact the CDC or state health department.

#### a. Isolation precautions

For patients with suspected or confirmed smallpox, both Airborne and Contact Precautions should be used in addition to Standard Precautions.

- Airborne Precautions are used for patients known or suspected to be infected with microorganisms transmitted by airborne droplet nuclei (small particle residue, 5 $\mu$  or smaller in size) of evaporated droplets containing microorganisms that can remain suspended in air and can be widely dispersed by air currents.
- Airborne Precautions require healthcare providers and others to wear respiratory protection when entering the patient room. (Appropriate respiratory protection is based on facility selection policy; must meet the minimal NIOSH standard for particulate respirators, N95).<sup>5,15</sup>
- Contact Precautions are used for patients known or suspected to be infected or colonized with epidemiologically important organisms that can be transmitted by direct contact with the patient or indirect contact with potentially contaminated surfaces in the patient's care area.
- Contact precautions require healthcare providers and others to:
  - Wear clean gloves upon entry into patient room.
  - Wear gown for all patient contact and for all contact with the patient's environment. Based on local policy, some healthcare facilities require a gown be worn to enter the room of a patient on Contact Precautions. Gown must be removed before leaving the patient's room.
  - Wash hands using an antimicrobial agent.

b. Patient placement

Patients suspected or confirmed with smallpox require placement in rooms that meet the ventilation and engineering requirements for Airborne Precautions, which include:

- Monitored negative air pressure in relation to the corridor and surrounding areas.
- 6 – 12 air exchanges per hour.
- Appropriate discharge of air to the outdoors, or monitored high efficiency filtration of air prior to circulation to other areas in the healthcare facility.
- A door that must remain closed.

**Healthcare facilities without patient rooms appropriate for the isolation and care required for Airborne Precautions should have a plan for transfer of suspected or confirmed smallpox patients to neighboring facilities with appropriate isolation rooms.**

Patient placement in a private room is preferred. However, in the event of a large outbreak, patients who have active infections with the same disease (i.e., smallpox) may be cohorted in rooms that meet appropriate ventilation and airflow requirements for Airborne Precautions.<sup>5,6</sup>

c. Patient transport

- Limit the movement and transport of patients with suspected or confirmed smallpox to essential medical purposes only.
- When transport is necessary, minimize the dispersal of respiratory droplets by placing a mask on the patient, if possible<sup>5</sup>

d. Cleaning, disinfection, and sterilization of equipment and environment

A component of Contact Precautions is careful management of potentially contaminated equipment and environmental surfaces.

- When possible, noncritical patient care equipment should be dedicated to a single patient (or cohort of patients with the same illness).



- If use of common items is unavoidable, all potentially contaminated, reusable equipment should not be used for the care of another patient until it has been appropriately cleaned and reprocessed. Policies should be in place and monitored for compliance.<sup>5</sup>

e. Discharge management

In general, patients with smallpox will not be discharged from a healthcare facility until determined they are no longer infectious. Therefore, no special discharge instructions are required.

f. Post-mortem care

Airborne and Contact Precautions should be used for post-mortem care.<sup>5</sup>

#### 4. Post Exposure Management

a. Decontamination of patients / environment

- Patient decontamination after exposure to smallpox is not indicated.
- Items potentially contaminated by infectious lesions should be handled using Contact Precautions.<sup>6</sup>

b. Prophylaxis and post-exposure immunization

Recommendations for prophylaxis are subject to change. Up-to-date recommendations should be obtained in consultation with local and state health departments and CDC.

Post-exposure immunization with smallpox vaccine (vaccinia virus) is available and effective. Vaccination alone is recommended if given within 3 days of exposure. Passive immunization is also available in the form of vaccinia immune-globulin (VIG) (0.6ml/kg IM). If greater than 3 days has elapsed since exposure, both vaccination and VIG are recommended.<sup>12</sup> VIG is maintained at USAMRIID, 301/619-2833.<sup>10 11</sup>

Vaccination is generally contraindicated in pregnant women, and persons with immunosuppression, HIV-infection, and eczema, who are at risk for disseminated vaccinia disease. However, the risk of smallpox vaccination should be weighed against the likelihood for developing smallpox following a known exposure. VIG should be given concomitantly with vaccination in these patients.<sup>11</sup>

Following prophylactic care, exposed individuals should be instructed to monitor themselves for development of flu-like symptoms or rash during the incubation period (i.e., for 7 to 17 days after exposure) and immediately report to designated care sites selected to minimize the risk of exposure to others.

Facilities should ensure that policies are in place to identify and manage health care workers exposed to infectious patients. In general, maintenance of accurate occupational health records will facilitate identification, contact, assessment, and delivery of post-exposure care to potentially exposed healthcare workers.

c. Triage and management of large scale exposures / potential exposures

Advance planning must involve IC professionals in cooperation with building engineering staff, to identify sites within the facility that can provide necessary parameters for Airborne Precautions. See Section I for additional general details regarding planning for large-scale patient management.

#### 5. Laboratory Support and Confirmation

a. Diagnostic samples to obtain

For decisions regarding obtaining and processing diagnostic specimens, contact state laboratory authorities or CDC.

b. Laboratory selection

Handling of clinical specimens must be coordinated with state health departments, CDC, and USAMRIID. Testing can be performed only in BSL - 4 laboratories.<sup>11</sup> The FBI will coordinate collection of evidence and delivery of forensic specimens to FBI or Department of Defense laboratories.

d. Transport requirements

Specimen packaging and transport must be coordinated with local and state health departments, and the FBI. A chain of custody document should accompany the specimen from the moment of collection. For specific instructions, contact the **Bioterrorism Emergency Number at the CDC Emergency Response Office, 770/488-7100**. Advance planning may include identification of appropriate packaging materials and transport media in collaboration with the clinical laboratory at individual facilities.

## 6. Patient, Visitor, and Public Information

Fact sheets for distribution should be prepared, including a clear description of symptoms and where to report for evaluation and care if such symptoms are recognized. Details about the type and duration of isolation should be provided. Vaccination information that details who should receive the vaccine and possible side effects should be provided. Extreme measures such as burning or boiling potentially exposed materials should be discouraged.

## Reference List

1. Anonymous. Bioterrorism alleging use of anthrax and interim guidelines for management - United States, 1998. *MMWR Morb Mortal Wkly Rep* 1999;48:69-74.
2. Noah DL, Sovel AL, Ostroff SM, Kildew JA. Biological warfare training: infectious disease outbreak differentiation criteria. *Mil Med* 1998;163:198-201.
3. DOD DFFUaE. NBC Domestic preparedness response workbook.1998.
4. Simon JD. Biological terrorism. *JAMA* 1997;278:428-30.
5. Centers for Disease Control and Prevention, the Hospital Infection Control Practices Advisory Committee (HICPAC). Recommendations for isolation precautions in hospitals. *Am J Infect Control* 1996;24:24-52.
6. American public health association. Control of communicable diseases in man. Washington DC:American public health association; 1995.
7. Tucker JB. National health and medical services response to incidents of chemical and biological terrorism. *JAMA* 1997;278:362-8.
8. Holloway HC, Norwood AE, Fullerton CS, Engel CC Jr, Ursano RJ. The threat of biological weapons. Prophylaxis and mitigation of psychological and social consequences. *JAMA* 1997;278:425-7.
9. Pile JC, Malone JD, Eitzen EM, Friedlander AM. Anthrax as a potential biological warfare agent. *Arch Intern Med* 1998;158:429-34.
10. Franz D, Jahrling PB, Friedlander AM, McClain DJ, Hoover DL, Bryne WR, et al. Clinical recognition and management of patients exposed to biological warfare agents. *JAMA* 1997;278:399-411.
11. U.S.Army medical research institute of infectious diseases. Medical management of biological casualties. Fort Detrick:USAMRIID; 1998.
12. Anonymous. Drugs and vaccines against biological weapons. *Med Lett Drugs Ther* 1999;41:15-6.
13. Shapiro RL, Hatheway C, Becher J, Swerdlow DL. Botulism surveillance and emergency response. *JAMA* 1997;278:433-5.
14. Shapiro RL, Hatheway C, Swerdlow DL. Botulism in the United States: A clinical and epidemiological review. *Arch Intern Med* 1998;129:221-8.
15. Federal Register. Respiratory protective devices; final rules and notice. 1995.

## Appendix 1: Federal Bureau of Investigation (FBI) Field Offices

Revised FBI 1/5/99

FIELD OFFICE	STREET ADDRESS	ZIP CODE	TELEPHONE No.
Albany, NY	200 McCarty Avenue	12209	518/465-7551
Albuquerque, NM	415 Silver Avenue, SW, Suite 300	87102	505/224-2000
Anchorage, AK	101 East 6 <sup>th</sup> Avenue	99501	907/258-5322
Atlanta, GA	2635 Century Parkway, NE; Suite 400	30345	404/679-9000
Baltimore, MD	7142 Ambassador Road	21244	410/265-8080
Birmingham, AL	2121 8 <sup>th</sup> Avenue, N., Room 1400	35203	205/326-6166
Boston, MA	One Center Plaza, Suite 600	02108	617/742-5533
Buffalo, NY	One FBI Plaza	14202	716-856-7800
Charlotte, NC	400 S. Tryon Street, Suite 900 Wachovia Blvd	28285	704/377-9200
Chicago, IL	219 S. Dearborn Street, Room 905	60604	312/431-1333
Cincinnati, OH	550 Main Street, Room 9000	45202	513/421-4310
Cleveland, OH	1240 East 9 <sup>th</sup> Street, Room 3005	44199	216/522-1400
Columbia, SC	151 Westpark Blvd.	29210	803/551-1200
Dallas, TX	1801 N. Lamar, Suite 300	75202	214/720-2200
Denver, CO	1961 Stout Street, Room 1823, FOB	80294	303/629-7171
Detroit, MI	477 Michigan Avenue, P.V. McNamara FOB, 26 <sup>th</sup> Floor	48226	313/965-2323
El Paso, TX	Suite 3000, 660 South Mesa Hills Drive	79912	915/832-5000
Honolulu, HI	300 Ala Moana Blvd., Room 4-230, Kalaniana'ole FOB	96850	808/521-1411
Houston, TX	2500 East T.C. Jester	77008	713/693-5000
Indianapolis, IN	575 N. Pennsylvania St., Room 679, FOB	46204	317/639-3301
Jackson, MS	100 W. Capitol Street, Suite 1553, FOB	39269	601/948-5000
Jacksonville, FL	7820 Arlington Expy, Suite 200	32211	904/721-1211
Kansas City, MO	1300 Summit Street	64105	816/221-6100
Knoxville, TN	710 Locust Street, Suite 600	37902	423/544-0751
Las Vegas, NV	John Lawrence Bailey Bldg., 700 E. Charleston Blvd.	89104	702/385-1281
Little Rock, AR	10825 Financial Centre Pkwy., Suite 200	72211	501/221-9100
Los Angeles, CA	11000 Wilshire Blvd., Suite 1700 FOB	90024	310/477-6565
Louisville, KY	600 Martin Luther King Jr. Pl., Room 500	40202	502/583-3941
Memphis, TN	225 North Humphreys Blvd., Suite 3000, Eagle Crest Bldg.	38120	901/747-4300
Miami, FL	16320 NW 2 <sup>nd</sup> Avenue, N. Miami Beach	33169	305/944-9101
Milwaukee, WI	330 E. Kilbourn Avenue, Suite 600	53202	414/276-4684
Minneapolis, MN	111 Washington Avenue South, Suite 1100	55401	612/376-3200
Mobile, AL	One St. Louis Street, 3 <sup>rd</sup> Floor, One St. Louis Centre	36602	334/438-3674
New Haven, CT	150 Court Street, Room 535 FOB	06510	203/777-6311
New Orleans, LA	1250 Poydras Street, Suite 2200	70113	504/522-4671
New York City, NY	26 Federal Plaza, 23 <sup>rd</sup> Floor	10278	212/384-1000
Newark, NJ	One Gateway Center, 22 <sup>nd</sup> Floor	07102	973/622-5613
Norfolk, VA	150 Corporate Blvd.	23502	757/455-0100
Oklahoma City, OK	50 Penn Place, Suite 1600	73118	405/290-7770
Omaha, NE	10755 Burt Street	68114	402/493-8688
Philadelphia, PA	600 Arch Street, 8 <sup>th</sup> Floor; William J. Green, Jr., FOB	19106	215/418-4000
Phoenix, AZ	201 E. Indianola Avenue, Suite 400	85012	602/279-5511
Pittsburgh, PA	700 Grant Street, Suite 300 USPO	15219	412/471-2000
Portland, OR	1500 S.W. 1 <sup>st</sup> Avenue, Suite 400; Crown Plaza Bldg.	97201	503/224-4181
Richmond, VA	111 Greencourt Road	23228	804/261-1044
Sacramento, CA	4500 Orange Grove Avenue	95841	916/481-9110
Salt Lake City, UT	257 East 200 South, Suite 1200	84111	801/579-1400
San Antonio, TX	615 E. Houston Street, Suite 200; US Post Office & Courthouse Bldg.	78205	210/225-6741
San Diego, CA	9797 Aero Drive	92123	619/565-1255
San Francisco, CA	450 Golden Gate Avenue, 13 <sup>th</sup> Floor	94102	415/553-7400
San Juan, PR	150 Carlos Chardon, Room 526; U.S. Federal Building, Hato Roy, PR	00918	787/754-6000
Seattle, WA	915 Second Avenue, Room 710	98174	206/622-0460
Springfield, IL	400 W. Monroe Street, Suite 400	62704	217/522-9675
St. Louis, Mo	2222 Market Street	63103	314/231-4324
Tampa, FL	500 E. Zack Street, Suite 610 FOB	33602	813/273-4566
Washington, D.C.	601 4 <sup>th</sup> Street, NW	20535	202/278-2000

Appendix 2: **Telephone Directory of State and Territorial Public Health Directors****Alabama**

Alabama Department of Public Health  
 State Health Officer  
 Phone No. (334) 206-5200  
 Fax No. (334) 206-2008

**Alaska**

Division of Public Health  
 Alaska Department of Health and Social  
 Services  
 Director  
 Phone No. (907) 465-3090  
 Fax No. (907) 586-1877

**American Samoa**

Department of Health  
 American Samoa Government  
 Director  
 Phone No. (684) 633-4606  
 Fax No. (684) 633-5379

**Arizona**

Arizona Department of Health Services  
 Director  
 Phone No. (602) 542-1025  
 Fax No. (602) 542-1062

**Arkansas**

Arkansas Department of Health  
 Director  
 Phone No. (501) 661-2417  
 Fax No. (501) 671-1450

**California**

California Department of Health Services  
 State Health Officer  
 Phone No. (916) 657-1493  
 Fax No. (916) 657-3089

**Colorado**

Colorado Department of Public Health &  
 Environment  
 Executive Director  
 Phone No. (303) 692-2011  
 Fax No. (303) 691-7702

**Connecticut**

Connecticut Department of Public Health  
 Commissioner  
 Phone No. (860) 509-7101  
 Fax No. (860) 509-7111

**Delaware**

Division of Public Health  
 Delaware Department of Health and Social  
 Services  
 Director  
 Phone No. (302) 739-4700  
 Fax No. (302) 739-6659

**District of Columbia**

DC Department of Health  
 Acting Director  
 Phone No. (202) 645-5556  
 Fax No. (202) 645-0526

**Florida**

Florida Department of Health  
 Secretary and State Health Officer  
 Phone No. (850) 487-2945  
 Fax No. (850) 487-3729

**Georgia**

Division of Public Health  
 Georgia Department of Human Resources  
 Director  
 Phone No. (404) 657-2700  
 Fax No. (404) 657-2715

**Guam**

Department of Public Health & Social  
Services  
Government of Guam  
Director of Health  
Phone No. (671) 735-7102  
Fax No. (671) 734-5910

**Hawaii**

Hawaii Department of Health  
Director  
Phone No. (808) 586-4410  
Fax No. (808) 586-4444

**Idaho**

Division of Health  
Idaho Department of Health and Welfare  
Administrator  
Phone No. (208) 334-5945  
Fax No. (208) 334-6581

**Illinois**

Illinois Department of Public Health  
Director of Public Health  
Phone No. (217) 782-4977  
Fax No. (217) 782-3987

**Indiana**

Indiana State Department of Health  
State Health Commissioner  
Phone No. (317) 233-7400  
Fax No. (317) 233-7387

**Iowa**

Iowa Department of Public Health  
Director of Public Health  
Phone No. (515) 281-5605  
Fax No. (515) 281-4958

**Kansas**

Kansas Department of Health and  
Environment  
Director of Health  
Phone No. (785) 296-1343  
Fax No. (785) 296-1562

**Kentucky**

Kentucky Department for Public Health  
Commissioner  
Phone No. (502) 564-3970  
Fax No. (502) 564-6533

**Louisiana**

Louisiana Department of Health and  
Hospitals  
Asst Secretary and State Health Officer  
Phone No. (504) 342-8093  
Fax No. (504) 342-8098

**Maine**

Maine Bureau of Health  
Maine Department of Human Services  
Director  
Phone No. (207) 287-3201  
Fax No. (207) 287-4631

**Mariana Islands**

Department of Public Health &  
Environmental Services  
Commonwealth of the Northern Mariana  
Islands  
Secretary of Health and Environmental  
Services  
Phone No. (670) 234-8950  
Fax No. (670) 234-8930

**Marshall Islands**

Republic of the Marshall Islands  
Majuro Hospital  
Minister of Health & Environmental  
Services  
Phone No. (692) 625-3355  
Fax No. (692) 625-3432

**Maryland**

Maryland Dept of Health and Mental  
Hygiene  
Secretary  
Phone No. (410) 767-6505  
Fax No. (410) 767-6489

**Massachusetts**

Massachusetts Department of Public Health  
 Commissioner  
 Phone No. (617) 624-5200  
 Fax No. (617) 624-5206

**Michigan**

Community Public Health Agency  
 Michigan Department of Community Health  
 Chief Executive and Medical Officer  
 Phone No. (517) 335-8024  
 Fax No. (517) 335-9476

**Micronesia**

Department of Health Services  
 FSM National Government  
 Secretary of Health  
 Phone No. (691) 320-2619  
 Fax No. (691) 320-5263

**Minnesota**

Minnesota Department of Health  
 Commissioner of Health  
 Phone No. (651) 296-8401  
 Fax No. (651) 215-5801

**Mississippi**

Mississippi State Department of Health  
 State Health Officer and Chief Executive  
 Phone No. (601) 960-7634  
 Fax No. (601) 960-7931

**Missouri**

Missouri Department of Health  
 Director  
 Phone No. (573) 751-6001  
 Fax No. (573) 751-6041

**Montana**

Montana Department of Public Health &  
 Human  
 Services  
 Director  
 Phone No. (406) 444-5622  
 Fax No. (406) 444-1970

**Nebraska**

Nebraska Health and Human Services  
 System  
 Chief Medical Officer  
 Phone No. (402) 471-8399  
 Fax No. (402) 471-9449

**Nevada**

Division of Health  
 Nevada State Department of Human  
 Resources  
 State Health Officer  
 Phone No. (702) 687-3786  
 Fax No. (702) 687-3859

**New Hampshire**

New Hampshire Department of Health &  
 Human Services  
 Medical Director  
 Phone No. (603) 271-4372  
 Fax No. (603) 271-4827

**New Jersey**

New Jersey Department of Health & Senior  
 Services  
 Commissioner of Health  
 Phone No. (609) 292-7837  
 Fax No. (609) 292-0053

**New Mexico**

New Mexico Department of Health  
 Secretary  
 Phone No. (505) 827-2613  
 Fax No. (505) 827-2530

**New York**

New York State Department of Health  
 ESP-Corning Tower, 14th Floor  
 Albany, NY 12237  
 Commissioner of Health  
 Phone No. (518) 474-2011  
 Fax No. (518) 474-5450

**North Carolina**

NC Department of Health and Human  
Services  
State Health Director  
Phone No. (919) 733-4392  
Fax No. (919) 715-4645

**North Dakota**

North Dakota Department of Health  
State Health Officer  
Phone No. (701) 328-2372  
Fax No. (701) 328-4727

**Ohio**

Ohio Department of Health  
Director of Health  
Phone No. (614) 466-2253  
Fax No. (614) 644-0085

**Oklahoma**

Oklahoma State Department of Health  
Commissioner of Health  
Phone No. (405) 271-4200  
Fax No. (405) 271-3431

**Oregon**

Oregon Health Division  
Oregon Department of Human Resources  
Administrator  
Phone No. (503) 731-4000  
Fax No. (503) 731-4078

**Palau, Republic of**

Ministry of Health  
Republic of Palau  
Minister of Health  
Phone No. (680) 488-2813  
Fax No. (680) 488-1211

**Pennsylvania**

Pennsylvania Department of Health  
Secretary of Health  
Phone No. (717) 787-6436  
Fax No. (717) 787-0191

**Puerto Rico**

Puerto Rico Department of Health  
Secretary of Health  
Phone No. (787) 274-7602  
Fax No. (787) 250-6547

**Rhode Island**

Rhode Island Department of Health  
Director of Health  
Phone No. (401) 277-2231  
Fax No. (401) 277-6548

**South Carolina**

SC Department of Health and  
Environmental Control  
Commissioner  
Phone No. (803) 734-4880  
Fax No. (803) 734-4620

**South Dakota**

South Dakota State Department of Health  
Secretary of Health  
Phone No. (605) 773-3361  
Fax No. (605) 773-5683

**Tennessee**

Tennessee Department of Health  
State Health Officer  
Phone No. (615) 741-3111  
Fax No. (615) 741-2491

**Texas**

Texas Department of Health  
Commissioner of Health  
Phone No. (512) 458-7375  
Fax No. (512) 458-7477

**Utah**

Utah Department of Health  
Director  
Phone No. (801) 538-6111  
Fax No. (801) 538-6306



**Vermont**

Vermont Department of Health  
Commissioner  
Phone No. (802) 863-7280  
Fax No. (802) 865-7754

**Virgin Islands**

Virgin Islands Department of Health  
Commissioner of Health  
Phone No. (340) 774-0117; Fax No. (340)  
777-4001

**Virginia**

Virginia Department of Health  
State Health Commissioner  
Phone No. (804) 786-3561  
Fax No. (804) 786-4616

**Washington**

Washington State Department of Health  
Acting Secretary of Health  
Phone No. (360) 753-5871  
Fax No. (360) 586-7424

**West Virginia**

Bureau for Public Health  
WV Department of Health & Human  
Resources  
Commissioner of Health  
Phone No. (304) 558-2971  
Fax No. (304) 558-1035

**Wisconsin**

Division of Health  
Wisconsin Department of Health and Family  
Services  
Administrator  
Phone No. (608) 266-1511  
Fax No. (608) 267-2832

**Wyoming**

Wyoming Department of Health  
Director  
Phone No. (307) 777-7656  
Fax No. (307) 777-7439

### Appendix 3: **Websites Relevant to Bioterrorism Readiness**

<http://www.apic.org>

<http://www.cdc.gov/ncidod/diseases/bioterr.htm>

<http://www.cdc.gov/ncidod/dbmd/anthrax.htm>

<http://www.cdc.gov/ncidod/diseases/foodborn/botu.htm>

<http://www.cdc.gov/ncidod/srp/drugservice/immuodrugs.htm>

<http://www.nbc-med.org/SiteContent/HomePage/WhatsNew/anthraxinfo/Anthraxinfo3.htm>

<http://www.defenselink.mil/specials/Anthrax/anth.htm>

[http://www.hopkins-id.edu/bioterr/bioterr\\_1.html](http://www.hopkins-id.edu/bioterr/bioterr_1.html)

<http://www.who.int/emc-documents/zoonoses/docs/whoemczdi986.html>

<http://www.hopkins-biodefense.org>

### Appendix 4: **Other sources of information:**

USAMRIID 301/619-2833

BIOPORT (producers of anthrax vaccine) 517/327-1500

AMERICAN RED CROSS \_\_\_/\_\_\_-\_\_\_

SALVATION ARMY 1-888/321-3433

US PUBLIC HEALTH SERVICE 1-800-872-6367

DOMESTIC PREPAREDNESS INFORMATION LINE 1-800-368-6498

NATIONAL RESPONSE CENTER 1-800-424-8802